

### REMARKS

Claim 1 has been amended and claims 16-23 are canceled herein. New claims 24-27 have been added. Accordingly, claims 1-15, and 24-27 remain under prosecution in this application.

#### Restriction

The undersigned elected Group I (claims 1-15) for prosecution in this application. Accordingly, the undersigned hereby cancels the non-elected claims (Group II – claims 16-23) without prejudice, as being drawn to a non-elected invention.

#### 35 USC §103

Claim 1, 3, 4, 7 are rejected under 35 USC § 103 as being unpatentable over Kelland or Ergun. The Examiner asserts that both Kelland and Ergun suggest the claim process of “exposing a mixture of particles to microwave energy to heat the particles. . .” The undersigned has amended claim and, in doing so, has removed the reference to microwave energy. Accordingly, claim 1 as amended is now limited to “. . . exposing the mixture of particles to millimeter wave energy. . .” Microwave energy is generally considered wave energy falling within the frequency range from 1000 MHz and upward. On the other hand, millimeter waves are electromagnetic radiation in the frequency range of 30-500 giga-hertz (see attached page 361 from the Radio Shack Dictionary of Electronics). Thus, in comparing these two definitions, it is easily seen that the millimeter wave portion of the spectrum falls within (i.e. is a subportion) of the microwave energy spectrum. Claim 1, as amended, specifically claims the millimeter wave portion of the spectrum wherein the applied references teach applying electromagnetic waves in the microwave portion of the spectrum. Because the claims are directed to a narrow range and the references teach a broad range, there is no teaching with “sufficient specificity” to constitute a rejection of claim 1. Specifically, there is no motivation for one skilled in the art to use the specific claimed millimeter wave spectrum simply because the broader microwave spectrum is known. For this reason alone, the undersigned believes that claim 1 is now in condition for allowance.

New claim 24 has been added. New claim 24 includes the limitations of originally submitted claims 1 and 2. None of the references of record teach or suggest the invention set

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forth in new claim 24 and accordingly, the undersigned believes that new claim 24 is now in condition for allowance.

New claim 25 has been added. New claim 25 includes the limitations of originally submitted claims 1 and 5. None of the references of record teach or suggest the invention set forth in new claim 25 and accordingly, the undersigned believes that new claim 25 is now in condition for allowance.

New claim 26 has been added. New claim 26 includes the limitations of originally submitted claims 1 and 6. None of the references of record teach or suggest the invention set forth in new claim 26 and accordingly, the undersigned believes that new claim 26 is now in condition for allowance.

New claim 27 has been added. New claim 27 includes the limitations of originally submitted claims 1 and 8. None of the references of record teach or suggest the invention set forth in new claim 27 and accordingly, the undersigned believes that new claim 27 is now in condition for allowance.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Any fees due with the filing of this paper are set forth on the attached fee transmittal. If any additional fees are due with the filing of this paper, please charge our Deposit Account No. 503145, under Order No. 209533-81444 from which the undersigned is authorized to draw.

Dated: 8/17/04

Respectfully submitted,

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## Preface

### FOURTH EDITION SECOND PRINTING—1974

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All rights reserved. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein.

Despite the electronic sophistication of modern communications systems, it is words and the mental images they create that have made progress possible. Considering the vast number of elements that results in some 60 million possible words per year, it is no wonder that words have lagged behind the rapid rate merely to express the thoughts and ideas into the mysteries which surround the electronics demonstrated more forcefully than in fact, at the present rate of discovery, the electronics engineer has learned is obscure.

As new technologies evolve, fresh terms are needed to communicate, describe, and define concepts, components, and techniques. Therefore, a work such as this dictionary is necessary. A work such as this dictionary is necessary in the world of electronics has with those about him and to grasp it. This latest edition contains definitions of terms that have come into existence in the last few years, as well as meanings for existing terms. These changes are the result of our expanding technical knowledge and measure of our progress.

No such book is the work of one man. Many contributions, industry sources provided help in the preparation of certain terms truly reflective of their meaning. I want to express sincere gratitude to Mr. J. Whalen, for his invaluable comments and suggestions.

## microvoltmeter

## microvolts per meter

## milliohm

phones into a single input to an audio amplifier. The output from each microphone is adjustable by individual controls on the mixer.

**microphone preamplifier**—See Microphone Amplifier.

**microphone stand**—A stand that holds a microphone the desired distance above the floor or a table.

**microphone transformer**—An iron-core transformer used for coupling certain microphones to an amplifier or transmission line.

**microphonics**—The generation of an electrical noise signal by mechanical motion of internal parts within a device.

**microphonism**—1. The production of noise as a result of magnetic shock or vibration. 2. The quasiperiodic voltage output of a tube produced by mechanical resonance of its elements as a result of mechanical impulse excitation. 3. The periodic voltage output of a tube produced by mechanical resonances of its elements as a result of sustained mechanical excitation. 4. The output voltage of a tube acting as an electrical transducer of mechanical energy.

**microphonograph**—A device which amplifies and records weak sounds; used in training the deaf to speak.

**microphonoscope**—A binaural stethoscope using a membrane in the chest piece to accentuate the sound.

**microphotograph**—A small picture of a large subject. The microfilming of a check or other document produces a microphotograph.

**microprogram**—A computer program written in the most basic instructions or subcommands that can be executed by the computer. Frequently, it is stored in read-only memory. See also Firmware.

**microprogramming**—The setting up of basic suboperations for a computer to handle after which the programmer combines them; and they are presented to the computer again in a higher-level program. For example, if a computer has only basic instructions for addition, subtraction, and multiplication, the instruction for division would be defined by microprogramming.

**microradiometer**—Also called a radio thermometer. A thermosensitive detector of radiant power. It consists of a thermopile supported on and connected directly to a moving coil of a galvanometer.

**microsecond**—One millionth of a second.

**microstrip**—A microwave transmission component in which a single conductor is supported above a ground plane. Also called stripline.

**microsyn**—A precise and sensitive pick-off device for converting angular displacement within a small range to an electrical signal. See microsystems electronics—See Microelectronics.

**microvolt**—One millionth of a volt.

**microvoltmeter**—A highly sensitive voltmeter, which measures millionths of a volt.

**microvolts per meter**—The potential difference in microvolts developed between an antenna system and ground, divided by the distance in meters between the two points.

**microvolts/meter/mile**—One method of stating the field strength of a radiated field. Radiation from industrial heating equipment, for example, must be suppressed so that the radiated field strength does not exceed 10 microvolts per meter at a distance of 1 mile from the source.

**microwafer**—A basic microcircuit building block generally made of beryllia, alumina, or glass. Terminations on the edges are usually of gold on top of chromium, with a heavy nickel overlay for welding.

**microwatt**—One millionth of a watt.

**microwave**—A term applied to radio waves in the frequency range of 1000 megahertz and upward. Generally defines operations in the region where distributed constant circuits enclosed by conducting boundaries are used instead of the conventional lumped-circuit components.

**microwave amplification by stimulated emission of radiation**—Amplification by a radio-frequency amplifier in which a radio signal stimulates emission of energy in a molecular or atomic system. See microwave power supply.

**microwave discriminator**—A tuned cavity that converts a frequency-modulated microwave signal into an audio or video signal.

**microwave early warning**—Abbreviated MWE. High-power, long-range, early-warning radar. It has numerous indicators that provide high resolution and large traffic capacity.

**microwave filter**—A filter built into a transmission line to pass desired frequencies but reject or absorb all other frequencies.

**microwave frequencies**—Frequencies of approximately 1000 MHz and above.

**microwave integrated circuit**—An electronic circuit fabricated by microelectronic technology and capable of operating at frequencies above one gigahertz. Either hybrid or monolithic integrated circuit technology may be used.

**microwave power transmission**—A method of transmitting power through space from a transmitting antenna to a receiving antenna.

**microwave relay**—The relaying of telephone calls and television programs by means of highly directed frequency radio waves that are sent on from one booster station to the next.

**micrometer**—A device for measuring the refractive index of the atmosphere at microwave frequencies, usually by the interferometer method.

**micron**—The portion of the electromagnetic spectrum between the far infrared and the radio-frequency por-

tion. Commonly regarded as extending from 1000 (30 cm) to 300,000 (1 mm) megahertz.

**microwave relay system**—A series of ultrahigh-frequency radio transmitters and receivers comprising a system for handling communications (usually multichannel).

**microwaves**—Radio frequencies with such short wavelengths that they exhibit some of the properties of light. Their frequency range is from 1000 MHz up. (Microwaves are preferred in point-to-point communications because they are easily concentrated into a beam.)

**middle marker**—In an instrument-landing system, a marker located on a localizer course line, about 3500 feet from the approach end of the runway.

**middle-side system**—See Mitte-Seite Stereo System.

**migration**—The movement of some metals, notably silver, from one location to another as a result of a plating action that takes place in the presence of moisture and an electrical potential.

**mike**—Slang for microphone.

**mil**—One thousandth of an inch. Used in the United States for measuring wire diameter.

**MIL**—Abbreviation for military. Pertains to a nation's armed forces, including its army, navy, and air force. Specifically, the armed forces of the United States.

**Miller bridge**—A type of bridge circuit for measuring the amplification factor of vacuum tubes.

**Miller effect**—The increase in the effective grid-to-cathode capacitance of a vacuum tube because the plate induces a charge electrostatically on the grid through grid-to-plate capacitance.

**Miller oscillator**—A crystal-controlled oscillator in which the crystal oscillates at its parallel resonant frequency due to the connection of negative resistance across its plates.

**milli**—Abbreviated m. Prefix meaning one thousandth (1/1000, or  $10^{-3}$ ).

**milliammeter**—An electric current meter calibrated in milliamperes.

**milliampere**—Abbreviated mA. One one-thousandth (.001) of an ampere.

**millihenry**—Abbreviated mH. One one-thousandth (.001) of a henry.

**millilambert**—A unit of brightness equal to one one-thousandth (.001) of a lambert.

**millimaxwell**—One one-thousandth of a maxwell.

**millimeter waves**—Electromagnetic radiation in the frequency range of 30 to 500 gigahertz with corresponding wavelengths of 10 millimeters to 0.6 millimeter.

**millimicro**—Obsolete prefix for nano, representing  $10^{-9}$ .

**millimicron**—A unit of length equal to one ten-millionth of a centimeter ( $10^{-7}$  cm), or one one-thousandth of a micron.

**milliohm**—One one-thousandth (.001) of an ohm.